REMARKS

This is in response to the Office Action dated December 20, 2002. In view of the foregoing amendments and following representations, reconsideration is respectfully requested.

Initially, filed concurrently herewith, is an "Information Disclosure Statement" (IDS). The Examiner is requested to kindly acknowledge receipt and consideration of the IDS by returning an initialed and dated copy of Form PTO 1449.

Next, the specification has been amended to provide the preferred headings. Copies of the amended portions of the specification and claims, with changes marked therein, are attached and entitled "*Version with Markings to Show Changes Made*."

Next, on page 3 of the Office Action, claims 54 and 56 are objected to under 37 CFR 1.75(c). Accordingly, claims 54 and 56 have been cancelled.

Next, on page 3 of the Office Action, claims 40-42, 69 and 70 are objected to under 37 CFR 1.75(c) as failing to further limit the subject matter of a previous claim. Accordingly, claims 40-42, 69 and 70 have been amended to clarify the further method steps that are recited in each of these dependent claims. Therefore, it is submitted that each of claims 40-42, 69 and 70 now clearly complies with 37 CFR 1.75(c).

Next, on page 2 of the Office Action, claims 35-39, 43-39, 55, 57, 58, 59-68, 71-76 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kohama et al. (USPN 6,412,701). It is submitted that the present invention, as defined in the amended claims, now clearly distinguishes over the Kohama reference for the following reasons.

In the present invention, as shown in Fig. 1A, a semiconductor device 3 is inserted into the thermoplastic resin portion 7 and thereafter a bump 5, which is formed on electrode 4, is exposed from the thermoplastic resin portion 7. That is, the semiconductor device 3 is inserted into the thermoplastic resin portion 7 from one surface thereof and then the bump 5 is exposed at an opposite surface of the thermoplastic resin portion 7.

Kohama discloses a flexible IC including a flexible substrate 3 made of a nonwoven fabric in which an IC chip 1 and a coil 2 are completely embedded.

In the rejection, the Examiner takes the position that "Kohama discloses that part of the structure may be exposed (col. 2, lines 66-67 and col. 3, lines 1-4)". However, the exposed portion of the structure is on the same side as the structure is inserted in the substrate.

It is clear from the specification of Kohama that one IC chip is embedded from one side of a nonwoven fabric without embedding the whole of the IC chip into the fabric and while an upper surface of the IC chip is exposed to the one surface of the fabric. See column 13, lines 15-17; Fig. 11B, column 13, lines 39-41; and Fig. 12A, column 14, lines 30-33 fo Kohama. Clearly the Kohama method is significantly different from the method claimed in the present invention in which the semiconductor device is inserted into the thermoplastic resin sheet from **one surface** thereof and thereafter the end surface of the bump(s) of the semiconductor device is exposed at **the opposite surface** of the thermoplastic resin sheet. After being exposed through the opposite surface, the exposed

end surface of the semiconductor chip can be electrically connected to a board or a circuit pattern.

In view of the above, it is clearly that the Kohama reference does not teach a method in which a semiconductor device is inserted into a thermoplastic resin portion so as to expose a bump of the device through an opposite side of the thermoplastic resin portion. Furthermore, the Kohama apparatus does not include the necessary apparatus for performing the operation of exposing the device through the opposite side.

Accordingly, it is submitted that the present application is now clearly in condition for allowance. The Examiner therefore is requested to pass this case to issue.

In the event that the Examiner has any comments or suggestions of a nature necessary to place this case in condition for allowance, then the Examiner is requested to contact Applicant's undersigned attorney by telephone to promptly resolve any remaining matters.

Respectfully submitted,

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(DESCRIPTION)

Semiconductor Device Package Manufacturing Method and Semiconductor Device Package Manufactured by the Method

BACKGROUND OF THE INVENTION

1. Technical Field

The present invention relates to a semiconductor device package manufacturing method capable of mounting a semiconductor device with high density, a small thickness, high productivity, and high reliability, an electronic component module manufacturing method, a noncontact IC card manufacturing method, utilizing the method, a semiconductor device package manufactured by the semiconductor device package manufacturing method, a method for manufacturing a semiconductor device-mounted component such as a semiconductor device package and an electronic component module, a method for manufacturing a semiconductor device-mounted finished-product utilizing the semiconductor device-mounted component manufacturing method and a semiconductor device-mounted finished-product manufactured by the semiconductor device-mounted finished-product manufacturing method.

2. ~~Background Art~~ Description of Related Art

The conventional semiconductor device package will be described with reference to Fig. 18 through Fig. 21.

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in thickness and the issue that the package cannot be applied to a commodity, which is restricted to a thickness of not greater than 0.76 mm as in, for example, a noncontact IC card.

Accordingly, the object of the present invention is to solve the aforementioned issues and provide a thin type semiconductor device package manufacturing method with high quality and high productivity, an electronic component module manufacturing method, a noncontact IC card manufacturing method, utilizing the semiconductor device package manufacturing method, a semiconductor device package manufactured by the semiconductor device package manufacturing method, a method for manufacturing a semiconductor device-mounted component such as a semiconductor device package and an electronic component module, a method for manufacturing a semiconductor device-mounted finished-product utilizing the semiconductor device-mounted component manufacturing method and a semiconductor device-mounted finished-product manufactured by the semiconductor device-mounted finished-product manufacturing method.

SUMMARY OF THE INVENTION

[~~Disclosure Of Invention~~]

In order to achieve the aforementioned object, the present invention is constructed as follows.

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invention, there is provided a semiconductor device-mounted finished-product manufactured by the semiconductor device-mounted finished-product manufacturing apparatus defined in the 30th aspect.

According to a 33rd aspect of the present invention, there is provided a semiconductor device-mounted finished-product defined in the 31st aspect, wherein the semiconductor device-mounted finished-product is a noncontact IC card.

According to a 34th aspect of the present invention, there is provided a semiconductor device-mounted finished-product defined in the 32nd aspect, wherein the semiconductor device-mounted finished-product is a noncontact IC card.

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Brief Description Of Drawings

These and other aspects and features of the present invention will become clear from the following description taken in conjunction with the preferred embodiments thereof with reference to the accompanying drawings, in which:

Fig. 1A and Fig. 1B are partial sectional views of a semiconductor device package manufactured by a semiconductor device package manufacturing method according to a first embodiment and a second embodiment, respectively,

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processes of the conventional noncontact IC card;

Fig. 43 is a sectional view showing a manufacturing process of the conventional noncontact IC card;

Fig. 44 is a sectional view showing a manufacturing process of the conventional noncontact IC card;

Fig. 45 is a sectional view showing a manufacturing process of the conventional noncontact IC card;

Fig. 46 is a sectional view showing a manufacturing process of the conventional noncontact IC card;

Fig. 47 is a sectional view showing the structure of the conventional noncontact IC card; and

Fig. 48 is a sectional view showing a deficiency state of the conventional noncontact IC card.

DETAILED DESCRIPTION OF THE INVENTION

[~~Best Mode for Carrying Out the Invention~~]

Before the description of the present invention proceeds, it is to be noted that like parts are designated by like reference numerals throughout the accompanying drawings.

Several embodiments of the present invention will be described below with reference to the accompanying

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device 3 divided into each individual piece by the wire bonding method using a metallic wire formed of Au, Cu, solder, or the like.

Next, in step S3, as shown in Fig. 3C, one or a plurality of semiconductor devices 3 on which the bumps 4 have been formed are mounted on a sheet 7a formed of a thermoplastic resin of polyethylene terephthalate, vinyl chloride, polycarbonate, acrylonitrile butadiene styrene, or the like. The thickness of the thermoplastic resin sheet 7a is preferably basically not greater than a total thickness of the thickness of the semiconductor device 3 and the height of the bump 4. For example, when the thickness of the semiconductor device 3 is 0.18 mm and the height of the bump 4 is 0.04 mm, there is employed a thermoplastic resin sheet 7a of a thickness of 0.2 mm.

Next, in step S4, as shown in Fig. 3D, by placing the thermoplastic resin sheet 7a on a hot pressing plate 8B arranged opposite to a hot pressing plate 8A, holding the thermoplastic resin sheet 7a on which the semiconductor device 3 is mounted between the hot pressing plates 8A and 8B, and pressurizing the hot pressing plate 8A against the hot pressing plate 8B relative~~ly~~ to each other, hot pressing is carried out to melt the thermoplastic resin sheet 7a, with which the surface of the semiconductor device 3 except for the upper surface is covered and the

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side surfaces of the bumps 4 of the semiconductor device 3 are covered, exposing only the end surfaces 9 of the bumps. The melted thermoplastic resin sheet 7a is cooled to constitute the thermoplastic resin portion 7. With regard to the hot pressing conditions, when, for example, polyethylene terephthalate is employed for the thermoplastic resin sheet 7a, the conditions include a pressure of 30 kg/cm^2 (about 30×10^5 Pa), a temperature of 120°C, and a pressing time of one minute. It is to be noted that the temperature and the pressure are varied depending on the material of the thermoplastic resin sheet 7a. Fig. 3E is a sectional view showing a state after the hot pressing.

Next, in step S5, the thermoplastic resin portion 7 is cut in specified positions A shown in Fig. 4A. A distance from the end surface of the side portion of the semiconductor device 3 to the cutting position A is not particularly specified.

Through the aforementioned processes, a semiconductor device package of the first embodiment is completed in step S7 as shown in Fig. 4B. This is the semiconductor device package shown in Fig. 1A.

The bump 4 formed on the electrode 5 of the semiconductor device 3 may be a bump 4 of the shape shown in Fig. 5A (generally called the ton-off bump) or a bump 4A

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35.(Amended) A semiconductor device package manufacturing method comprising:

forming bumps on element electrodes of a semiconductor device by a wire bonding method;

positioning the semiconductor device on a thermoplastic resin sheet;

forming a thermoplastic resin portion for covering a portion of the semiconductor device except for end surfaces of the bumps by melting the thermoplastic resin sheet by inserting the semiconductor device into the thermoplastic resin sheet from one surface of the thermoplastic resin sheet and exposing the end surfaces of the bumps at the other surface through hot pressing of the thermoplastic resin sheet and the semiconductor device; and

cutting the thermoplastic resin portion after the hot pressing.

36.(Amended) A semiconductor device package manufacturing method comprising:

forming by a wire bonding method a bump on an element electrode of a semiconductor device of an individual piece obtained by dicing a semiconductor wafer;

positioning one or a plurality of the semiconductor devices on a thermoplastic resin sheet;

forming a thermoplastic resin portion for covering a portion of the semiconductor device except for an end surface of the bump by melting the thermoplastic resin sheet by inserting the semiconductor device into the thermoplastic resin sheet from one surface of the thermoplastic resin sheet and exposing the end surface of the bump at the opposite surface of the thermoplastic resin sheet through hot pressing of the thermoplastic resin sheet and each individual piece of the semiconductor device; and

cutting the thermoplastic resin portion after the hot pressing.

37.(Amended) A semiconductor device package manufacturing method comprising:

forming bumps on semiconductor device electrodes of a semiconductor wafer by a wire bonding method;

dicing the semiconductor wafer on which the bump is formed to divide the wafer into each individual piece of a semiconductor device;

positioning one or a plurality of the semiconductor devices on a thermoplastic resin sheet;

forming a thermoplastic resin portion for covering a portion of the semiconductor device except for end surfaces of the bumps by melting the thermoplastic resin sheet <u>by inserting the semiconductor device into the thermoplastic resin sheet from one surface of the thermoplastic resin sheet and exposing the end surfaces of the bumps at the opposite surface of the thermoplastic resin sheet</u> through hot pressing of the thermoplastic resin sheet and each individual piece of the semiconductor device; and

cutting the thermoplastic resin portion after the hot pressing.

38. (Amended) A semiconductor device package manufacturing method comprising:

forming bumps on element electrodes of a semiconductor wafer by a wire bonding method;

positioning a thermoplastic resin sheet on the semiconductor wafer;

forming a thermoplastic resin portion for covering a portion of the semiconductor device except for end surfaces of the bumps by melting the thermoplastic resin sheet <u>by inserting the semiconductor device into the thermoplastic resin sheet from one surface of the thermoplastic resin sheet and exposing the end surfaces of the bumps at the opposite surface of the thermoplastic resin sheet</u> through hot pressing of the semiconductor wafer and the thermoplastic resin sheet; and

dicing the semiconductor wafer and the thermoplastic resin portion, which have undergone the hot pressing.

39. (Amended) A semiconductor device package manufacturing method <u>as</u>

claimed in claim 35, further comprising:

printing a circuit pattern with a conductive paste on the side of the [in a] thermoplastic resin portion [that is located on an end surface side] where the bump is exposed [and belongs to a semiconductor device package manufactured by the semiconductor device package manufacturing method **claimed in claim 35]**;

mounting a metallic particle in a specified position of the circuit pattern;

hardening the conductive paste [with a metallic particle arranged in a specified position of the circuit pattern]; and

forming a second thermoplastic resin portion for covering a portion of the semiconductor device except for an end surface of the metallic particle by positioning the semiconductor device package obtained after the hardening of the conductive paste on the thermoplastic resin sheet and melting the thermoplastic resin sheet through hot pressing [; and

cutting the thermoplastic resin portion after the hot pressing].

40. (Amended) A semiconductor device package manufacturing method as claimed in claim 39, further comprising:

printing a circuit pattern with a conductive paste on an electrode surface side of [a] the second thermoplastic resin portion [semiconductor device package manufactured by the semiconductor device package manufacturing method **claimed in claim 39]**;

mounting a metallic particle in a specified position of the circuit pattern printed on the second thermoplastic resin portion;

hardening the conductive paste [with a metallic particle arranged in a specified position of the circuit pattern]; and

forming a third thermoplastic resin portion for covering a portion of the semiconductor device except for an end surface of the metallic particle by positioning the semiconductor device package obtained after the hardening of the conductive paste on the second thermoplastic resin sheet and melting the thermoplastic resin sheet through hot pressing[; and

repeating cutting of the thermoplastic resin portion after the hot pressing in specified times, thereby forming a multi-layer package].

41. (Amended) A semiconductor device package manufacturing method as claimed in claim 38, further comprising:

printing a circuit pattern with a conductive paste on an electrode surface side of the semiconductor wafer before the dicing of the semiconductor wafer and the thermoplastic resin portion, which have undergone the hot pressing [, according to the semiconductor device package manufacturing method of **claim 38]** ;

hardening the conductive paste with a metallic particle arranged in a specified position of the circuit pattern; and

forming a second thermoplastic resin portion for covering a portion of the semiconductor device except for an end surface of the metallic particle by aligning in position the semiconductor wafer obtained after the hardening of the conductive paste with the thermoplastic resin sheet and melting the second thermoplastic resin sheet through hot pressing [; and

dicing the semiconductor wafer that has the metallic particle and has undergone the hot pressing] .

42. (Amended) A semiconductor device package manufacturing method as claimed in claim 38, further comprising:

printing a circuit pattern with a conductive paste on an electrode surface side of the semiconductor wafer before the dicing of the semiconductor wafer and the thermoplastic resin portion, which have undergone the hot pressing [, according to the semiconductor device package manufacturing method of **claim 38]** ;

hardening the conductive paste with a metallic particle arranged in a specified position of the circuit pattern; and

obtaining a multi-layer structure by repeating in specified times the process of forming [a] another thermoplastic resin portion for covering a portion of the semiconductor device except for an end surface of the metallic particle by aligning in

position the semiconductor wafer obtained after the hardening of the conductive paste with the thermoplastic resin sheet and melting the thermoplastic resin sheet through hot pressing [, and thereafter dicing the semiconductor wafer that has the metallic particle and has undergone the hot pressing].

43. (Amended) A semiconductor device package manufacturing method as **claimed in claim 35**, wherein when the thermoplastic resin portion is formed, the thermoplastic resin sheet is melted, [and] thereby covering the surface of the semiconductor device on which the bump is formed except for an end surface of the semiconductor device.

44. (Amended) An electronic component module manufacturing method comprising:

manufacturing a semiconductor device package by forming bumps on element electrodes of a semiconductor device by a wire bonding method, positioning the semiconductor device on a thermoplastic resin sheet, forming a thermoplastic resin portion for covering a portion of the semiconductor device except for end surfaces of the bumps by melting the thermoplastic resin sheet by inserting the semiconductor device into the thermoplastic resin sheet from one surface of the thermoplastic resin sheet and exposing the end surfaces of the bumps at the opposite surface through hot pressing of the thermoplastic resin sheet and the semiconductor device, and cutting the thermoplastic resin portion after the hot pressing;

printing a circuit pattern with a conductive paste on a [first] second thermoplastic resin sheet;

mounting [a] the manufactured semiconductor device package [manufactured by the semiconductor device package manufacturing method **claimed in claim 35**] , and an electronic component at specified positions of the circuit pattern of the [first] second thermoplastic resin sheet; and

forming a thermoplastic resin portion for covering the semiconductor package and the electronic component by aligning in position a [second] third

thermoplastic resin sheet with the [first] second thermoplastic resin sheet on which the semiconductor device package and the electronic component are mounted and melting the [second] third thermoplastic resin sheet through hot pressing.

45. (Amended) An electronic component module manufacturing method as **claimed in claim 44**, wherein when the thermoplastic resin portion is formed, a surface of the semiconductor device on which the bump is formed is covered except at [for] the end surface of the [bump] bumps of the semiconductor device by melting the thermoplastic resin sheet.

46. A method for manufacturing a noncontact IC card having an antenna coil for executing transmission and reception between an IC chip and outside, the method comprising:

printing a circuit pattern capable of being electrically connected to an IC electrode portion of the IC chip or a circuit pattern to be electrically connected to the IC electrode portion including a coil pattern that constitutes the antenna coil on a thermoplastic resin base material with a conductive paste ;

manufacturing a semiconductor device package by forming bumps on element electrodes of a semiconductor device by a wire bonding method, positioning the semiconductor device on a thermoplastic resin sheet, forming a thermoplastic resin portion for covering a portion of the semiconductor device except for end surfaces of the bumps by melting the thermoplastic resin sheet by inserting the semiconductor device into the thermoplastic resin sheet from one surface of the thermoplastic resin sheet and exposing the end surfaces of the bumps at the opposite surface through hot pressing of the thermoplastic resin sheet and the semiconductor device, and cutting the thermoplastic resin portion after the hot pressing;

arranging [a] the semiconductor device package on the circuit pattern in a manner that the IC electrode portion of the IC chip [of the semiconductor device package that has the IC chip and is manufactured by the semiconductor device package manufacturing method **claimed in claim 35**,] is connected to the circuit

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pattern;

hardening the conductive paste;

forming a thermoplastic resin portion for covering the semiconductor device package by aligning in position a thermoplastic resin sheet on a semiconductor device package mounting surface side of the thermoplastic resin base material obtained after the hardening of the conductive paste and melting the thermoplastic resin sheet through hot pressing; and

cutting the thermoplastic resin portion after the hot pressing, thereby forming the card.

47. A semiconductor device package manufactured by the semiconductor device package manufacturing method **claimed in claim 35**.

48. A semiconductor device package manufactured. by the semiconductor device package manufacturing method **claimed in claim 43**.

49.(Amended) A semiconductor device-mounted component manufacturing method for performing mounting of a semiconductor device on a circuit pattern, which is electrically connected to the semiconductor device while being brought in contact with a bump of the semiconductor device and is formed of a conductive paste on a pattern forming surface of a base material, the method comprising:

inserting the semiconductor device into the base material with the bump of the semiconductor device put in an exposed state proximately to the pattern forming **[**surface;**]** <u>by inserting the semiconductor device into the base material from one surface of the base material and exposing an end surface of the bump at the opposite surface of the base material;</u> and

forming a contact area increasing portion for increasing a contact area of the circuit pattern with the bump on the bump exposed on the pattern forming surface.

50. (Amended) A semiconductor device-mounted component manufacturing

method as **claimed in claim 49**, wherein:

the contact area increasing portion is formed of an extension portion-forming member brought in contact with the bump or the pattern forming surface located in a vicinity of the bump when the contact area is increased[,]; and

the extension portion-forming member is pressurized against the bump or the pattern forming surface located in the vicinity of the bump.

51. A semiconductor device-mounted component manufacturing method as **claimed in claim 50**, wherein, when the extension portion-forming member has a cylindrical shape, a projecting portion is formed as the contact area increasing portion on the bump formed by a pressurizing operation for performing pressurization with the extension portion-forming member.

52. A semiconductor device-mounted component manufacturing method as **claimed in claim 50**, wherein, when the extension portion-forming member has a rugged portion at its tip, a rugged portion is formed as the contact area increasing portion on the bump formed by a pressurizing operation for performing pressurization with the extension portion-forming member.

53. A semiconductor device-mounted component manufacturing method as **claimed in claim 50**, wherein, when the extension portion-forming member has a cylindrical shape, a contact area increasing groove is formed in the vicinity of the bump by pressurizing the pattern forming surface in the vicinity of the bump by a pressurizing operation for performing pressurization with the extension portion-forming member, thus exposing the bump from the base material.

54. (Cancelled) A semiconductor device-mounted finished-product manufacturing method for encapsulating a semiconductor device-mounted component manufactured by the semiconductor device-mounted component manufacturing method **claimed in claim 49**.

55. A semiconductor device-mounted finished-product provided with a semiconductor device-mounted component manufactured by the semiconductor device-mounted component manufacturing method **claimed in claim 49**.

56. (Cancelled) A semiconductor device-mounted finished-product manufactured by the semiconductor device-mounted finished-product manufacturing method **claimed in claim 54**.

57. A semiconductor device-mounted finished-product as **claimed in claim 55**, wherein the semiconductor device-mounted finished-product is a noncontact IC card.

58. (Cancelled) A semiconductor device-mounted finished-product as **claimed in claim 56**, wherein the semiconductor device-mounted finished-product is a noncontact IC card.

59.(Amended) A semiconductor device-mounted component manufacturing apparatus for performing mounting of a semiconductor device on a circuit pattern, which is electrically connected to the semiconductor device while being brought in contact with a bump of the semiconductor device and is formed of a conductive paste on a pattern forming surface of a base material, the apparatus comprising:

a semiconductor device pressurizing device for inserting the semiconductor device [into the base material] <u>from one surface of the base material and exposing an end surface of the bump at the other surface of the base material</u> with the bump of the semiconductor device put in an exposed state or an unexposed state proximately to the pattern forming surface; and

a contact area increasing device for forming a contact area increasing portion for increasing a contact area of the circuit pattern with the bump [on the bump] <u>that is</u> exposed or located proximately to the pattern forming surface.

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60. (Amended) A semiconductor device-mounted component manufacturing apparatus as **claimed in claim 59**, wherein the contact area increasing device comprises:

an extension portion-forming member for forming the contact area increasing portion by coming in contact with the bump or in contact with the pattern forming surface located in the vicinity of the bump; and

an extension portion-forming member [-use] pressurizing device for pressurizing the extension portion-forming member against the bump or the pattern forming surface located in the vicinity of the bump.

61. (Amended) A semiconductor device-mounted component manufacturing apparatus as **claimed in claim 60**, wherein

the extension portion-forming member has a cylindrical shape and forms a projecting portion that serves as the contact area increasing portion on the bump formed by a pressurizing operation for performing pressurization with the extension portion-forming member [-use] pressurizing device.

62. (Amended) A semiconductor device-mounted component manufacturing apparatus as **claimed in claim 60**, wherein the extension portion-forming member has at its tip a rugged portion and forms a rugged portion as the contact area increasing portion on the bump formed by a pressurizing operation for performing pressurization with the extension portion-forming member [-use] pressurizing device.

63. (Amended) A semiconductor device-mounted component manufacturing apparatus as **claimed in claim 60**, wherein the extension portion-forming member has a cylindrical shape and forms a contact area increasing groove in the vicinity of the bump by pressurizing the pattern forming surface located in the vicinity of the bump by a pressurizing operation for performing pressurization with the extension portion-forming member [-use] pressurizing device, thus exposing the bump from the base material.

64. A semiconductor device-mounted finished-product manufacturing apparatus comprising:

the semiconductor device-mounted component manufacturing apparatus **claimed in claim 59**; and

an encapsulating device for encapsulating the semiconductor device-mounted component manufactured by the semiconductor device-mounted component manufacturing apparatus.

65. A semiconductor device-mounted finished-product comprising the semiconductor device-mounted component manufactured by the semiconductor device-mounted component manufacturing apparatus **claimed in claim 59**.

66. A semiconductor device-mounted finished-product manufactured by the semiconductor device-mounted finished-product manufacturing apparatus **claimed in claim 64**.

67. A semiconductor device-mounted finished-product **claimed in claim 65**, wherein the semiconductor device-mounted finished-product is a noncontact IC card.

68. A semiconductor device-mounted finished-product **claimed in claim 66**, wherein the semiconductor device-mounted finished-product is a noncontact IC card.

69. (Amended) A semiconductor device package manufacturing method <u>as claimed in claim 36, further</u> comprising:

printing a circuit pattern with a conductive paste in [a] <u>the</u> thermoplastic resin portion that is located on an end surface side where the bump is exposed [and belongs to a semiconductor device package manufactured by the semiconductor device package manufacturing method **claimed in claim 36]** ;

hardening the conductive paste with a metallic particle arranged in a specified position of the circuit pattern; <u>and</u>

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forming a thermoplastic resin portion for covering a portion of the semiconductor device except for an end surface of the metallic particle by positioning the semiconductor device package obtained after the hardening of the conductive paste on the thermoplastic resin sheet and melting the thermoplastic resin sheet through hot pressing [; and

cutting the thermoplastic resin portion after the hot pressing].

70. (Amended) A semiconductor device package manufacturing method <u>as claimed in claim 37, further</u> comprising:

printing a circuit pattern with a conductive paste in [a] <u>the</u> thermoplastic resin portion that is located on an end surface side where the bump is exposed [and belongs to a semiconductor device package manufactured by the semiconductor device package manufacturing method **claimed in claim 37]** ;

hardening the conductive paste with a metallic particle arranged in a specified position of the circuit pattern; <u>and</u>

forming a thermoplastic resin portion for covering a portion of the semiconductor device except for an end surface of the metallic particle by positioning the semiconductor device package obtained after the hardening of the conductive paste on the thermoplastic resin sheet and melting the thermoplastic resin sheet through hot pressing [; and

cutting the thermoplastic resin portion after the hot pressing].

71. (Amended) A semiconductor device package manufacturing method as **claimed in claim 36**, wherein when the thermoplastic resin portion is formed, the thermoplastic resin sheet is melted and thereby covering the surface of the semiconductor device on which the bump is formed except for an end surface of the semiconductor device.

72. (Amended) A semiconductor device package manufacturing method as **claimed in claim 37**, wherein when the thermoplastic resin portion is formed, the

thermoplastic resin sheet is melted and thereby covering the surface of the semiconductor device on which the bump is formed except for an end surface of the semiconductor device.

73. (Amended) A semiconductor device package manufacturing method as **claimed in claim 38**, wherein when the thermoplastic resin portion is formed, the thermoplastic resin sheet is melted and thereby covering the surface of the semiconductor device on which the bump is formed except for an end surface of the semiconductor device.

74. (Amended) A semiconductor device package manufacturing method as **claimed in claim 40**, wherein when the thermoplastic resin portion is formed, the thermoplastic resin sheet is melted and thereby covering the surface of the semiconductor device on which the bump is formed except for an end surface of the semiconductor device.

75. (Amended) A semiconductor device package manufacturing method as **claimed in claim 41**, wherein when the thermoplastic resin portion is formed, the thermoplastic resin sheet is melted and thereby covering the surface of the semiconductor device on which the bump is formed except for an end surface of the semiconductor device.

76. (Amended) A semiconductor device package manufacturing method as **claimed in claim 42**, wherein when the thermoplastic resin portion is formed, the thermoplastic resin sheet is melted and thereby covering the surface of the semiconductor device on which the bump is formed except for an end surface of the semiconductor device.